



PHANTOM 350

User's Manual
Manuel de l'utilisateur
Anwenderhandbuch
Manuale per l'operatore
Manual del usuario

Model: PHANTOM 350

At Antec, we continually refine and improve our products to ensure the highest quality. So it's possible that your new power supply may differ slightly from the descriptions in this manual. This isn't a problem; it's simply an improvement. As of the date of publication, all features, descriptions, and illustrations in this manual are correct.

Take a look at your new Phantom. You might have noticed that unlike almost any other PC power supply, it doesn't have a single cooling fan. That's because we designed Phantom to run silently. It incorporates advanced circuitry, and its extruded aluminum chassis acts as a gigantic heat sink for the entire power supply. In other words, the aluminum chassis dissipates the heat generated by the power supply, which is why it doesn't need a cooling fan.

ATX12V version 2.0 Compliance: The Phantom complies with the new ATX12V version 2.0 standard. It features dual +12V outputs, a 24-pin Main Power Connector, and a 4-pin 12V Power Connector to the motherboard. It also includes five to seven 4-pin Peripheral Power Connectors, one to two 4-pin Floppy Drive Power Connectors, two to four Serial ATA Power Connectors, a 6-pin PCI Express connector and a 24-pin to 20-pin power cable adapter.

It's backwards compatible with previous ATX form factor power supplies. If your motherboard has a 20-pin onboard connection, use the 24-pin to 20-pin adapter that is included with Phantom. To make sure you connect your power supply properly, please refer to the user manuals supplied with your motherboard and peripherals **before** connecting Phantom to any of your devices.

Protection: Phantom includes dual +12V output circuitry, which delivers safer and more reliable output to all of your system's components. Phantom also features a variety of industrial-grade protective circuitry: OCP (over current protection), OTP (over temperature protection), OVP (over voltage protection), OPP (over power protection), UVP (under voltage protection), and SCP (short circuit protection).

Chassis Ventilation Note: Before installing the Phantom into your chassis, make sure that your computer's chassis is sufficiently ventilated. Not all chassis come with fans installed, the idea often being to let the power supply fan do most or all of the chassis ventilation work, or that the user will install chassis fans. Since Phantom doesn't need or include a cooling fan, you must make sure that your chassis has enough exhaust fans installed to properly cool your other components. Antec will not be responsible for any failure resulting from insufficient cooling of your system.

Transportation Note: Because of Phantom's unique construction, it is considerably heavier than standard power supplies. To avoid possible damage to your case, we strongly recommend removing Phantom and transporting it separately if you plan to ship your computer somewhere or otherwise subject it to rough handling.

Power Switch: Phantom includes a main power switch. Make sure you turn the switch to the ON (I) position before you boot up your computer for the first time. Normally, you won't need to switch to the OFF (O) position, since the power supply includes a soft on/off feature. This lets you turn your computer on and off by using the soft switch on your computer case. If your computer crashes and you can't shut it down using the soft switch, you can switch the main power to the OFF (O) position. There is a blue power indicator on the same side of the power inlet plug. When the system is ON, the indicator lights up to indicate the power supply is on and working.

[**Applicable only to models designed for sale in the European Union:** Phantom includes Power Factor Correction (PFC) circuitry in accord with European regulation code EN61000-3-2. By altering the input wave shape, PFC improves the power factor of the power supply and results in increased energy efficiency, reduced heat loss, prolonged life for the power distribution and consumption equipment, and improved output voltage stability.]

Installing Phantom

Note (not applicable to models designed for the European Union): Check the red power supply voltage switch setting before installation. It should be the same as your local as your local power voltage (115V for U.S.A, Canada, Japan, etc. and 230V for Europe, some South East Asia countries, and others). Change the voltage setting if necessary. Failure to take this precaution could result in damage to your equipment and void your warranty.

1. Disconnect the power cord from your old power supply.
2. Open your computer case. Follow the directions provided in your case manual.
3. Disconnect all the power connectors from the motherboard and from the peripheral devices such as case fans, hard drives, floppy drives, etc.
4. Remove the existing power supply from your computer case and replace it with the Phantom power supply.
Note: Install the Phantom carefully, because the edges of the power supply are sharp.
5. Connect the power connectors to your motherboard and peripheral devices.
6. Close your computer case.
7. Connect the power cord to the Phantom.

1.0 INPUT:

1.1 VOLTAGE (AC Input)

RANGE	MINIMUM	NOMINAL	MAXIMUM	UNITS
1	90	115	135	VRMS
2	180	230	265	VRMS

1.2 FREQUENCY

47Hz ~ 63Hz

1.3 CURRENT

115V	230V
6A	3A

1.4 INRUSH CURRENT

115V/60A(max), 230V/80A(max.) at 25°C cold start

1.5 POWER EFFICIENCY

Minimum efficiency at full load per Intel testing standard, 115V/230Vac 60/50Hz

Version	Efficency
US	86% without PFC
EC	82% with PFC

2.0 OUTPUT:

VOLTAGE	+5V	+12V1	+12V2	+3.3V	-12V	+5Vsb
MAX. LOAD	30A	16A	18A	28A	0.5A	2.0A
MIN. LOAD	0.3A	0.3A	0.3A	0.3A	0A	0A
REGULATION	±5%	±5%	±5%	±3%	±5%	±5%
RIPPLE& NOISE (mV)	50	120	120	50	120	50

NOTE:

1. The continuous max DC output power shall not exceed 350W. +5V, +12V1, +12V2, and +3.3V output power shall not exceed 334W.
2. Ripple & noise test condition: AC 115V/230V 60/50Hz at full load

2.1 HOLD-UP TIME: 20ms (minimum)

Test Condition: 1. Full load. AC input 115V/230V, 57Hz/47Hz

2.2 LOAD TRANSIENT RESPONSE (STEP LOAD)

Step load changes of up to 20% of full load, while other loads remains constant within the rating. The load waveform shall be a square wave with the slope of the rise and fall at 1A/μsec and the frequency shall be from 10Hz to 1kHz. The DC output voltage will stay within regulation during the step load changes.

2.3 OVERSHOOT

Overshoot at turn-on shall be less than 10% of the nominal output voltage.

3.0 PROTECTION:

If the power supply is latched into shutdown stage (when OCP, OVP, OPP or short protection is working), the power supply shall return to normal operation only after the fault has been removed and should reset PS-ON for a minimum of 1 second. Then it will turn on again.

3.1 INPUT UNDER VOLTAGE

The power supply shall contain protection circuitry such that application of an input voltage below the minimum specified in Section 1.1 shall not cause any damage to the power supply.

3.2 OVER CURRENT PROTECTION

SENSE LEVEL	OVER CURRENT	
12V1	17.6A min	20.8A max
12V2	19.5A min	23.4A max
+5V	33.0A min	45.0A max
+3.3V	30.8A min	42.0A max

3.3 OVER VOLTAGE PROTECTION

SENSE LEVEL	OVER VOLTAGE	
12V1 & 12V2	13.3V min	14.3V max
+5V	5.7V min	6.2V max
+3.3V	3.7A min	4.1A max

3.4 SHORT CIRCUIT PROTECTION

All output to ground.

3.5 UNDER VOLTAGE PROTECTION

SENSE LEVEL	UNDER VOLTAGE	
12V1 & 12V2	9.5V min	10.5V max
+5V	4.1V min	4.47V max
+3.3V	2.55 Vmin	2.83V max

3.6 OVER TEMPERATURE

The power supply includes an over-temperature protection sensor, which can trip and shutdown the power supply at 110°C. Such an overheated condition is typically the result of internal current overloading or a cooling fan failure.

3.7 OVER LOAD PROTECTION

Overload currents to output rail will cause the output trip before they reach or exceed 110% ~ 140% for protection, the overload currents should be ramped at a minimum rate of 10A/s starting from full load.

4.0 TIME SEQUENCE

- T1 Power-On Time (500msec. max.)
- T2 Rise-time (20msec. max.)
- T3 Power Good Delay Time (100msec. < t3 < 500msec)
- T4 Power Fail Delay Time (1msec. min.)
- T5 Hold-Up time (20msec. min)

115V/230V(FULL LOAD):1mS minimum

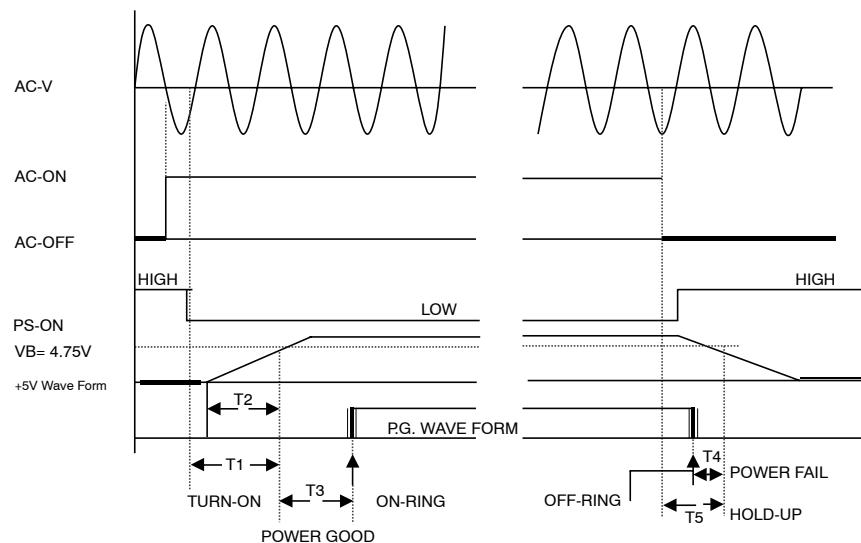


FIGURE 1

4.1 REMOTE ON/OFF CONTROL

The power supply is turn on/off by TTL signal.

Active Low	Power Supply turn on
Active High	Power Supply turn off

Remote On/Off Signal Characteristics

PS-ON	MIN	MAX
Vil input low voltage		0.8V
Lil, input low current ,Vin = 0.4V		-1.6mA
Vih, input High voltage, lin = -200uA	2.0V	
Vih open circuit, lin = 0		5.25V

4.2 AUXILIARY +5Vsb

This power supply is specifically equipped with an independent stand-by +5V output current, 2.0A max. This output will always provide +5V except when the AC line is cut-off.

4.3 AUTO RESTART

If the power supply's output dropped out of the regulation, which is caused by AC line Voltage, the power supply will automatically resumed normal operation only after the AC line voltage returns to the specified operating range.

5.0 ENVIRONMENT:

5.1 AMBIENT OPERATION TEMPERATURE	0°C to +65°C
5.2 AMBIENT OPERATION RELATIVE HUMIDITY	20% to 85%
5.3 AMBIENT STORAGE TEMPERATURE	-40°C to +70°C
5.4 AMBIENT STORAGE RELATIVE HUMIDITY	10% to 95%

6.0 CE REQUIREMENTS:

6.1 EMI

Meets FCC PART15 CLASS B

6.2 SAFETY REQUIREMENTS

Meets UL 1950, Third Edition

Meets EN 60950:1992 +A1:1993 +A2:1993 +A3:1995 +A4:1997 +A11:1997

Meets IEC 60950:1991 +A1:1992 +A2:1993 +A3:1995 +A4:1996

7.0 MTBF at 25°C = 80,000 hours

8.0 DC CONNECTOR AND CASE REQUIREMENTS

8.1 BASEBOARD CONNECTOR

ATX MAIN CONNECTOR (P1)

HOUSING: P/N P20-I42002 OR EQU

TERMINAL: P/N I42002BS-2 OR EQU

16AWG (Wire)	Signal	Pin	Pin	Signal	16AWG (Wire)
Orange	+ 3.3Vdc	13	1	+ 3.3Vdc	Orange
Blue	-12Vdc	14	2	+ 3.3Vdc	Orange
Black	COM	15	3	COM	Black
Green (22AWG)	PS-ON	16	4	+ 5Vdc	Red
Black	COM	17	5	COM	Black
Black	COM	18	6	+ 5Vdc	Red
Black	COM	19	7	COM	Black
Empty	Empty	20	8	POK	Gray (22AWG)
Red	+ 5Vdc	21	9	+ 5VSB	Purple
Red	+ 5Vdc	22	10	+ 12V _{1dc}	Yellow
Red	+ 5Vdc	23	11	+ 12V _{1dc}	Yellow
Black	COM	24	12	+ 3.3Vdc	Orange

PERIPHERAL CONNECTOR

(P2, P3, P5, P6, P8, P9, P10)

HOUSING: JMT JP1120-4

HOUSING: WST P4-A10202 OR EQU

TERMINAL: JMT J1120BS-2

TERMINAL: WST A10209BS-2

FLOPPY DRIVE CONNECTOR

(P4, P7)

HOUSING: JMT JP11635-4

HOUSING: WST P4-I25001 OR EQU

TERMINAL: JMT J11635BS-2

TERMINAL: WST I25001BS-2 OR EQU



Antec Quality 3-Year parts and labor warranty (AQ3)

See details at: <http://www.antec.com/warranty.html>

Pin	Signal	18AWG (Wire)	Pin	Signal	20AWG (Wire)
1	+ 12V1DC	Yellow	1	+ 5VDC	Red
2	COM	Black	2	COM	Black
3	COM	Black	3	COM	Black
4	+ 5VDC	Red	4	+ 12V1DC	Yellow

+ 12V POWER CONNECTOR (P12)

HOUSING: MOLEX 39-01-2040 or equivalent.

TERMINAL: MOLEX 39-29-9042 or equivalent.

Pin	Signal	18AWG (Wire)
1	COM	Black
2	COM	Black
3	+ 12V2DC	Yellow
4	+ 12V2DC	Yellow

SERIAL ATA POWER CONNECTOR

HOUSING: MOLEX 675820000 OR EQU

TERMINAL: MOLEX 67581000 OR EQU

Pin	Signal	18AWG (Wire)
1	+ 12V1DC	Yellow
2	COM	Black
3	+ 5VDC	Red
4	COM	Black
5	+ 3.3VDC	Orange

PCI EXPRESS CONNECTOR

HOUSING : MOLEX 455590002 OR EQU

TERMINAL : MOLEX 455580002 OR EQU

Pin	Signal	18AWG (Wire)
1	12V1DC	Yellow
2	12V1DC	Yellow
3	12V1DC	Yellow
4	COM	Black
5	COM	Black
6	COM	Black

ARIA-The delightfully diminutive case



- Ultra-quiet 300 Watt power supply
- Low-speed quiet 120mm & Cyclone Blower fans
- 4 drive bays, 5 front ports & 8-in-1 card reader
- Small form factor
- Accepts all microATX motherboards

UV Cobra Cables



- Your system will run faster and cooler
- UV-activated
- ATA 133 and floppy
- Also available in non-UV style

SONATA



The world's quietest PC case

- Ultra-quiet 380 Watt TruePower power supply
- Elegant piano-black finish
- Nine drive bays
- Low speed 120mm fan
- Rubber grommets for HDD bays

MINUET-Slimline PC Case



- Whisper quiet 220 Watt SmartPower power supply
- Low profile, small form factor
- Place it vertically or horizontally

SmartCool Fans



- Variable speed, with advanced temperature response system for quieter operation
- Available in 80mm, 92mm, 110mm sizes

iluminate



- Internal and external LED light tubes and mini-tubes.
- Available in blue, red, green, UV, or multicolor

NoiseKillers



- Reduce vibration and noise from case fans, power supplies, and disk drives by up to 80%

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